our inventory system that has totally completed end-to-end fibers. We go and look at using those. That's the same inventory information we go to to look at satisfying a CLEC dark fiber request.

If it turns out we do not, for our own purposes, have a fully assembled, usable end-to-end dark fiber circuit, then it kicks out to engineering, who then has to go and place more fiber cable and build additional fiber or do something to provide more fiber that we could use for ourselves.

MR. MAHER: Is there any sort of comparable process that Cavalier would be able to utilize in those types of circumstances to sort of order and pay for having that same type of work being done?

MS. SHOCKET: As a UNE, we only provide fiber, dark fiber, where it's in place, so there is no construction in fiber facilities for a CLEC to order. So there isn't a procedure that we have in place, because new construction of fiber services, or any UNE services -- excuse me, for fiber services, I don't know about the other ones, is not

available to a CLEC.

MR. ALBERT: When we kick into the part of the process that says hey, we've got to run an additional length of fiber cable so that we will then have usable, assignable fibers for ourselves, nothing parallels that in the UNE world, because I think we've got the requirement that says we don't have to place new additional cables to make a UNE available.

MR. MILLER: Do you exhaust all the capacity on each strand before putting lit services on the next strand?

MR. ALBERT: Yeah, each -- yes. Each strand we will -- you know, basically you need four strands for one of our fiber-optic services -- systems to work across it. So when we assign a fiber-optic strand, that strand is fully dedicated, either to the CLEC if they get it as dark fiber, or that strand is fully dedicated to ourselves if we're using it for our own lit fiber systems.

MR. MAHER: So I guess if I could just maybe go back for a second to the sort of things

that take place when it kicks out, the order kicks out and goes to the engineer. Is there anything sort of other than actually laying new fiber that might be able to be done to sort of make use of dark fiber, or is it basically typically that some new fiber has to be laid in those circumstances?

MR. ALBERT: Most often, it's new fiber. We had one issue in the Virginia arbitration with AT&T, where AT&T said that we should have been required to put in larger electronics and to rearrange circuits in order to free up dark fiber. That is possible to do that. The arbitration decision, though, said that we did not have to do that type of work to make dark fiber available.

Really what I'm describing is AT&T was requesting that we put in a large capacity fiber-optic system and then place onto it a bunch of our smaller fiber-optic systems, the net effect which would have been then to free up additional usable fibers. That was AT&T's request, and the decision in the arbitration was no, we did not have to build and rearrange traffic and put in new

multiplexers to make additional new fibers. So although that's possible, the arbitration said we did not have to do that.

MR. MAHER: Going back to clarify my question, I was looking again sort of for Verizon's internal operations. When it kicks out to its own engineer for some Verizon retail service that it wants to provide, possibly using dark fiber, to the extent it's available, is it the similar circumstance that it's just laying fiber, or are there other types of activities that might be done?

MR. ALBERT: The type of activity that AT&T requested, we will use that in some occasions to make additional fibers available. Putting in the larger capacity system and then getting rid of the older technology, there is a type of fiber system called an async system, which was the very original type of fiber systems, and we've on occasion, when we modernized the network, we will take a number of those smaller capacity systems, get them out of the network and replace them with a larger capacity system.

That in turn provides more fibers that are at that point then available for everybody to use, ourselves as well as CLECs. When we're done with it, they are then available. In the arbitration, AT&T was saying that at their request, we should be required to have to go do that. Our answer was no, when we do it, then they're there and everybody can use them. And I think that's what the decision was, is when we're done, they're there and everybody can use them.

MR. MAHER: I guess on this related issue, in terms of the additional types of information that Cavalier is looking for in response to dark fiber inquiries, particularly when dark fiber is not available, the proposed language listed a couple specific pieces of information, but also has some sort of general language as well. I'm wondering if you can clarify what specifically Cavalier is looking for, and in general what -- why it's seeking this information, what it's trying to use this information for.

MR. ASHENDEN: Sure. I guess my response

to that question would have to also pull in the issue of fiber maps as well, because they are interrelated. In a response to an inquiry where the result that comes back is fiber is available or fiber is not available, it's too nebulous to us to know whether that means the fiber between point A and point B doesn't exist, has never been put in the ground, or whether there is fiber available between the two points and maybe some capacity will become available in the distant future.

That becomes -- that kind of ties back to fiber maps, in that in order for us to apply for fiber, we have to send our inquiries. And knowing which specific segments exist is important to know what inquiries to send.

Now, in their explanation today of what the new process is supposed to do, as far as resolving the issue, it is overlooking a significant point, and that is in their examples, they were very one-dimensional, flat examples of a segment A to B to C to D, when in reality the networks that we are trying to design don't go from A to D or from A to B

to C to D, they go from A, B, C, D to A again, so it's a loop. So it becomes much more complex, because now you've got to try to -- excuse me. Now you've got to try to figure out where exactly this fiber goes. And the best way to do that is a fiber map.

Every other dark fiber vendor that we deal with provides these maps up front, free of charge, and it's basically a menu that you can look at and say okay, this is where it goes, this is where our network goes, we can start designing our network accordingly.

Then we start asking the questions, are they available. And that works real well. In this scenario, because we don't have the fiber maps and because the information that needs to come back from the inquiry is not only to determine whether or not it is existing, whether it's available rather, but whether or not it is existing. That's the other piece of information that's necessary.

So, you know, I guess no answer that doesn't allow me to over time create one of these

fiber maps for my own use is lacking.

MS. NATOLI: Is it that you need the information so you can plan your network, or you planned your network and you need the information to know whether the facilities are available for the network you've planned? Where I'm trying to get is, if you know you want to start at A and you need fiber that's going to go through B and C and get back to A -- maybe it's for Verizon, I don't mean to -- if you could get -- if you propose something like that to Verizon and said that's how I need it, I need to have it so that it's basically more than just from A to B, it's a ring I need or it's a triangle or something like that, and you could propose it to them, would you really care how they provisioned it, if they charged you the least cost mileage routing distance between those points?

I mean, would you really need that information, if that's what they gave you?

MR. ASHENDEN: I'm sorry, I'm not 100 percent clear on what your question is, I'm sorry.

MS. NATOLI: It sounded like you wanted --

you needed the information, not just for point A to B information, but to plan, for example, a ring around a certain area.

MR. ASHENDEN: That's correct.

MS. NATOLI: If you know you're going to provide a ring, you would probably know that there are multiple points that you would want to have fiber going through. So if you said to Verizon, I need dark fiber -- we have a dark fiber availability and these are the points it needs to go through, and you made that kind of request, first of all, can you make that kind of request under the existing system to them?

MR. ASHENDEN: That type of request is the inquiry process, and it's limited to an A and a B location.

MR. ALBERT: But to do what you're asking, they can chop up that one A and B into a bunch of smaller pieces. If they want from A to B to specifically go to Reston and then to go to Falls Church, they ask for those, you know, A and B links of those size, then they will get answers relative

to those specific chunks.

MR. ASHENDEN: But in the inquiry process, if you have a situation where there's four endpoints and you don't have the fiber map or any other details to tell you what's connected to what, instead of submitting four inquiries, you have to submit six, because that covers every possible route. As you go up in the number of points that you need to connect, that number goes up, I hesitate to say exponentially because that's not mathematically correct, but it goes up significantly.

As an example, five points and now all of a sudden you have to submit 10 inquiries. Six points, 15 inquiries. When we're talking about a network the size that we are trying to build in this area, you're talking 40 and 50 points. That's a lot of inquiries to get what a simple fiber map would provide.

MR. MAHER: I guess this sort of reminds me of a question for Verizon on the billing issue you had brought up before, and I was wondering, in

terms of the problem having to do with billing, the sort of the least mile of billing from A to Z when it goes through intermediate route, can Verizon's system bill based on the segments instead of billing end to end?

MS. SHOCKET: It cannot. The system that handles this is called CABS, carrier access billing system. The logic that's programmed into this system accepts only an originating point and a terminating point. And based on the coding of those two points, there's a table in the system that looks up the airline miles between those two points and bills the mileage accordingly. That's how we bill all our carrier services.

So if we were to build a -- or create a circuit that didn't follow the most efficient route, equate that to the least mileage, then we would have no way of billing for the additional mileage for that particular route.

The other thing is that dark fiber is defined in the rules as a point between collocation nodes in Verizon's COs to another Verizon CO,

collocation point there. It's not designed as a loop or ring service, and we don't provide a ring-type service for dark fiber UNE. We don't have one developed, and it's not in the rules that we're required to do that.

MR. MAHER: I guess -- let me follow up with that question. So what you're saying, then, is if there's a request from Cavalier for dark fiber between points A and C, and Verizon looks and finds that there's available dark fiber going from A to B to C, it couldn't just sort of for its own billing purposes set that up as a bill from A to B and then bill from B to C?

MS. SHOCKET: It would take extensive logic modification in CABS to be able to do that.

MR. ALBERT: It sounds really silly, but the way our billing systems have been set up for the nonswitched private lines that we provide, exactly the way Alice is describing it is the way it works. Intuitively it seems kind of weird, but -- for all of the nonswitch services, that's the billing format that we're -- and the billing and rating format that

we're locked into.

MR. MAHER: So this is a mechanized process, then?

MS. SHOCKET: The billing is, yes.

MR. MAHER: But I'm wondering, in term of -- in terms of from provisioning to billing, is that mechanized?

MS. SHOCKET: It gets on an order. The order is sent to the provisioning folks. The order itself has the originating point and the terminating point. It doesn't have all the points in between. So if you want all the points in between, you have to send separate orders for each one of those spans.

In the case of a longer span that really goes from A to Z, the CLEC would like us to connect those individual segments at each of the intermediate COs, and we do so with a cross-connect arrangement. If you had individual orders for each one of those spans, we'd have no means to cross connect them because they're separate, unique spans to be billed on an A and Z location. It creates a provision problem and billing problem if you want to

do individual spans.

MR. MAHER: So just so I understand, then, Cavalier electronically submits a service order for particular dark fiber, and that flows through in a mechanized way to the provisioning system?

MR. ALBERT: No.

MS. SHOCKET: Not totally mechanized. It drops out for manual processing to make sure all the correct information is in there, and then it is put into a system that goes into the provisioning folks to do their work. And it's manual once it gets into the provisioning. But it's all on an order, and the order -- there are systems that take the order from one organization to the other, to do the work.

MR. MAHER: Just to clarify, it's manual when it gets to provisioning or mechanized when it gets to provisioning?

MR. ALBERT: The engineering and the assigning of the fiber strands is people power. The service order itself is an electronic document that includes the overall beginning and the endpoints. But the work that engineers the fiber and assigns

the specific strands and looks for the different potential routes, that's human beings. That's Verizon's engineers that are doing that work.

MR. MAHER: So I guess my question maybe is then, isn't it possible at that stage for the person that's fulfilling -- the person that's doing the provisioning, the manual handling at that stage, to set it up -- to say bill it on these particular routes, rather than just flowing through that order as an A to C?

MS. SHOCKET: No, because then you don't have one order any more. You'd have an order for each one of those individual segments, and the order that was submitted by the CLEC is only one order, for one span, going for the longer, the sum of the segments. So in essence, you'd be changing integrity of the order, saying well, the order didn't say it wanted one span, it indeed wanted five spans, and set it up as a five-span request.

You couldn't do that without going back to the customer and saying we're going to reject your original order, please resubmit your order for a

five span. And now the next problem comes if they submit orders for five individual spans, how do they get cross-connected?

MR. MAHER: But if you're actually provisioning the five different spans pursuant to the original order, why would you have to go back and ask for the customer's permission to set it up within Verizon's internal systems as five separate orders?

MS. SHOCKET: Because you would have to change the order. The order is no longer the original A and Z order. In order to get all of those codes on the order that you would need to bill for the individual spans, you are changing the basic intent of the original order. You're putting in an A to B, and then a B to C, a C to D and a D to E. So those are five different orders.

MR. MAHER: I guess -- how is that different from what automatically happens if they just submit an A to C order and it's provisioned as five segments?

MS. SHOCKET: The difference is in what's

recorded on the order and what comes in from the CLEC on their access service request, into the center to make sure all the information is accurate on the order, and then gets mechanically forwarded to the engineering department for assignment and provisioning.

MR. MAHER: How is that different than the two scenarios? I mean in the one scenario where that happens and the other scenario, it seems like it would happen the same way, but then after that when someone is handling it at the provisioning stage before we input whatever information is necessary to indicate that the provisioning is complete, couldn't they do something to indicate that this should be billed based on the five individual spans?

MS. SHOCKET: No, the system can't take that. And you'd have to go back to the initiator of the order to say, "your order is now not one order, it's" however many orders it is, the number of spans. Then you run into the problem with how would we cross connect that, because now you have separate

orders.

There is a charge for cross-connecting the facilities. So if you don't have the cross connect -- if you don't have the information on the same order that cross connects you from point B to point C, because now they're two separate orders, how do you do that and where do you bill it.

It would be a major, major modification to our billing and provisioning systems to do something like that.

MR. ASHENDEN: I would like to make a comment that I just want to make sure it's clear that Cavalier is not complaining at all about the new issue where Verizon is saying if you apply for fiber between A and C that goes through B, that they can look at that all as a single inquiry. That's a good thing and relates to intermediate collocation, which is not an issue here. I'm just saying that that new process is not a substitute for fiber maps. That's the main point I want to make.

MR. MAHER: Go ahead.

MR. MILLER: I have some questions about

the deployment -- about how you lay cable to connect an end user customer location to your network, when that end user customer location is not in your CO. As an example, an office building that's not near to the central office, you would not lay cable from the central office all the way to the office building. You would probably connect the office building to the ring or to the transport facilities connecting two COs? Do you see what I'm saying? To create a spur or a lateral?

MR. ALBERT: Yeah, the -- when you were talking about the fiber that would run to a customer premise, the configuration, the network architecture of loop fiber, is very different than interoffice fiber. So interoffice fiber, here are two central offices, bang, big fiber cable, straight shot, pretty much gets built and there you have it. Merrifield to Falls Church, you run it in there.

The loop fiber network, which spreads out through all the streets and all the subdivisions, that gets expanded and extended over a period of time. And we will initially build out, the

terminology is a feeder route, but it's kind of like there are four main feeder routes in a wire center. There's an east, west, north and south. And a feeder route will have a small number of different branches that occur to it.

But over time, we build cables out into the loop network, through the feeder route. If a feeder route traverses a place where a fiber service is required, that a customer orders and didn't have a fiber service there before, we would then place and lay an additional fiber cable to go back and to intercept into the other fiber cables that exist.

MR. MILLER: But the intersecting facility, is that called a spur or lateral? Is there a certain term?

MR. ALBERT: You will hear spur, lateral, branch. Those words tend to get used pretty interchangeably.

MR. MILLER: When you build a spur, is there a standard amount of capacity that you designate? I mean, I gather --

MR. ALBERT: No.

MR. MILLER: It varies? Are there a certain number of strands in a sheet, certain number of sheets -- certain way --

MR. ALBERT: 12, twelvsies. The ribbon fiber cable, within a fiber -- ribbon there will be 12 strands. In small cable sizes, things go up with increments of 12. Once you get up to a larger size, it's still within multiples of 12, but the larger cable sizes start hopping up, not hitting every 12.

MR. MILLER: Is one fiber ribbon the smallest amount of capacity you would ever deploy in this context?

MR. ALBERT: Right now, and probably for the last few years, our current practice has been 24 is the smallest amount we will put in, 24 strands.

MR. MILLER: So two ribbons being the smallest number you will put in.

MR. ALBERT: Yes.

MR. MILLER: When you lay those two ribbons worth of fiber, how much of those 24 -- how many of those 24 strands do you splice into the intercepting facility?

MR. ALBERT: Usually 12 will go into the first intercept point. That doesn't mean, however, that those 12 still are connected all the way back to the central office. When you say "the first intercept point," if you've got a building, it's usually going to be at a pole or at a first manhole coming out of that building where we'll intercept the further branch.

So the minimum 24 fiber cable we will put into a building. When you hit the first splice point coming out of the building, either the first manhole out or the first pole out that we're splicing, we'll typically put 12 of them spliced in at that location, but that doesn't mean those 12 still are fully constructed all the way back to the central office. Usually, they are not, and usually to activate those full 12, there would be other fiber cables back towards the CO that would have to be placed and spliced to complete the further build-out.

It's a pretty peculiar phenomena how the loop fiber cables get built and expanded and

intercepted over time, over a period of years really, contrasted to the IOF fiber cables where it's boom, home run, and it goes from Merrifield to Falls Church.

MR. MILLER: These policies with deployment and splicing, is that available in this record or is that publicly available?

MR. ALBERT: What I just said is, but -- no, we don't have like a list of fiber building secrets that we publish to people.

MR. MILLER: I was asking more about if it's accessible or industry standard on this.

MR. ALBERT: Not industry standard. There have been a few state proceedings. Maine is an example where we had a lot of extensive description of how fiber networks are built.

MR. MILLER: If there are 12 -- so possibly 12 strands could be spliced in and 12 strands would not be spliced in?

MR. ALBERT: At that first intercept point, correct.

MR. MILLER: If those 12 strands that were

spliced and all carried Verizon traffic and were all lit and in use and a CLEC-like Cavalier requested a dark fiber strand, a dark fiber loop going back to an end office, what would the response be?

MR. ALBERT: That we would have -- it would be we would have -- not available because we would have to place and splice additional fiber cables to activate the additional 12 that ran the few hundred feet out of that building.

MR. MILLER: If those 12 were full with Verizon traffic, fully exhausted, and a CLEC or end user wanted to order lit service, wanted to order OC 48s or lit services from Verizon, would the answer come back "no facilities available" or would the answer be that you would splice and light those cables -- those strands?

MR. ALBERT: We would place the additional fiber cables and do the associated splicing work to make them continuous all the way back to the central office.

MR. MILLER: For the 12 strands that are connected, that are spliced in initially, this is

some other question I asked about interoffice fiber. If there were 12 different questions, each of them wanted a DS3, you would probably start filling up -- would you give each of those customers their own -- would you light all 12 strands and power all 12 strands, one for each customer, or do you aggregate all that traffic on one strand? Is there a way that that's usually handled?

MR. ALBERT: For end user type requests, we will typically put at least one multiplexer into -- one fiber-optic multiplexer in a building. That can then serve, depending on the size of the fiber-optic multiplexer, that can serve a number of DS3 circuits that would be ordered by customers within that building. You do get transmission and cabling distance limitations of how far a DS3 -- how far you can drive a DS3 off of a multiplexer.

When you have a very large office building, you can then get circumstances where you might have to put an additional multiplexer in that same building, say, up on the 15th floor, to then be able to pick up and serve DS3s to other customers